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ASBESTOS IN SOIL
STREAMLINING REGULATION AND MANAGEMENT

- **POLICY**
- **TECHNICAL SUPPORT DOCUMENT**

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ASBESTOS IN SOIL
STREAMLINING REGULATION AND MANAGEMENT

POLICY

The policy described below focuses on asbestos and material containing asbestos that is found on the ground surface or buried at depth. It is intended to establish an approach that coordinates the requirements of applicable state and federal programs, protects public health and the environment from exposures to released asbestos, and provides certainty and flexibility to people who need to deal with asbestos in soil in the course of developing property and/or cleaning up releases.

A separate Technical Support Document describes how this policy will be implemented. Appendices to the Technical Support Document contain specific proposed amendments to DEP's Air Quality Regulations (310 CMR 7.00 and 7.15), Solid Waste Regulations (310 CMR 19.000) and the Massachusetts Contingency Plan (310 CMR 40.0000), and proposed guidance on "Best Management Practices."

Background

Asbestos is an environmental contaminant encountered at previously developed sites. It is highly hazardous to human health when inhaled. Where there is no route of exposure (e.g., where it is buried at depth in soil or under another type of barrier), it presents no current risk to public health, although care needs to be taken to ensure that the asbestos will be properly managed when brought to the surface by disturbing its cover or by excavation.

Current Regulations: Building renovations and demolitions involving asbestos are regulated by the U.S. EPA (under the National Emission Standards for Hazardous Air Pollutants, or "NESHAP ") and by DEP's Bureau of Waste Prevention (BWP) under 310 CMR 7.00. Anyone engaging in renovation or demolition work is required to survey the building for asbestos, and notify BWP at least 10 working days before work commences if asbestos is present. Asbestos removal work must be performed by contractors holding an appropriate license from the MA Dept. of Labor and Workforce Development (Division of Occupational Safety, DOS). Wastes containing any amount asbestos are regulated by BWP under the solid waste rules, 310 CMR 19.000 and must be disposed of as a "special waste" (310 CMR 19.061). Asbestos released to the environment is regulated by DEP's Bureau of Waste Site Cleanup (BWSC), under the Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000).

In these proposals, the Department intends to identify the situations that must be reported to DEP and addressed in accordance with the MCP, and to clarify that these response actions will not need to be subject to additional review by other DEP programs. All other situations would continue to be addressed in accordance with 310 CMR 7.15. By clarifying and streamlining requirements of the DEP programs, DEP expects to establish better awareness of the rules and "best management practices" in the development community, and to improve the agency's ability to allocate its resources to the situations that pose the greatest risk to public health.

Policy

Applicability: This policy generally addresses the assessment and cleanup of three types of situations: asbestos in (and around) pipes or boilers that have been buried in soil; asbestos in debris that has been disposed improperly in or on the ground; and unconsolidated asbestos fibers found in soil.

DEP's policy contains several elements:

- A new Solid Waste exemption from the definition of "Special Waste" for soil containing unconsolidated asbestos fibers in soil where no asbestos-containing source material is present;
- Elimination of notification to the Department (BWP or BWSC) of unconsolidated asbestos fibers that are found in the environment in the absence of source material;
- Elimination of BWP notification for the active management of asbestos containing material during response actions conducted under the MCP;
- Standardized BWP Best Management Practices (BMPs) for active management (including excavation and loading bulk quantities into containers destined for off-site disposal) of asbestos in soil (guidance);
- Retained BWP notification of the active management of asbestos containing material that is not conducted under the MCP;
- New MCP notification exemptions for intact or relatively intact structures (pipes, boilers, concrete panels, floor tiles) and unconsolidated asbestos fibers in soil;
- New MCP notification criteria for construction and demolition debris containing asbestos, and
- Clarification of the MCP's rules for managing waste generated by response actions to ensure that soil containing asbestos is managed and disposed of properly.

Figure 1 describes the conceptual process for notifying DEP of releases of asbestos in soil, assessing these releases, and cleaning them up where needed.

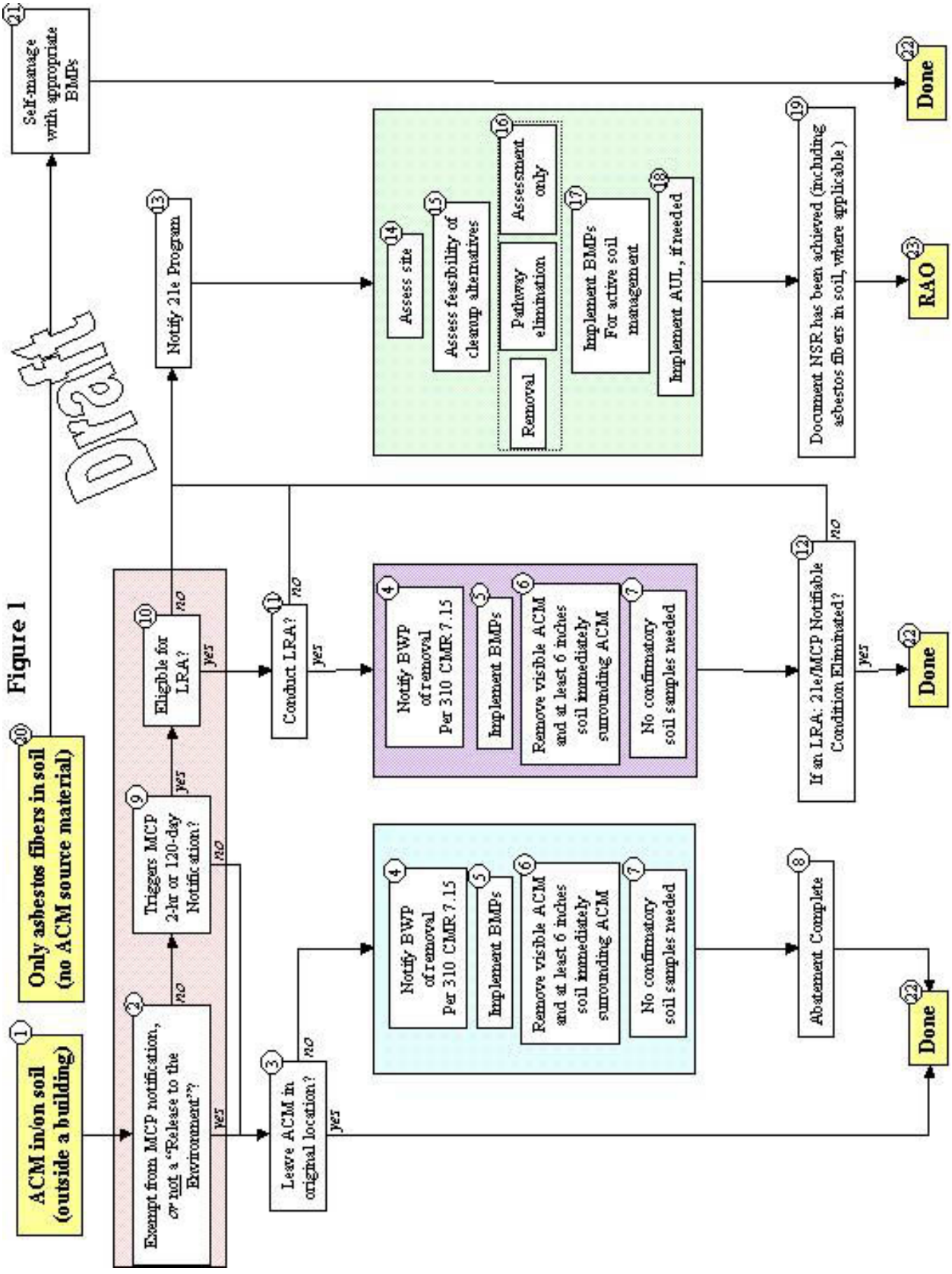
Figure 1
Draft
1 ACM in/on soil (outside a building)
2 Exempt from MCP notification, or not a "Release to the Environment"?
3 Leave ACM in original location?
4 Notify BWP of removal Per 310 CMR 7.15
5 Implement BMPs
6 Remove visible ACM and at least 6 inches soil immediately surrounding ACM
7 No confirmatory soil samples needed
8 Abatement Complete
9 Triggers MCP 2-hr or 120-day Notification?
10 Eligible for LRA?
11 Conduct LRA?
12 If an LRA: 21e/MCP Notifiable Condition Eliminated?
13 Notify 21e Program
14 Assess site
15 Assess feasibility of cleanup alternatives
16 Assessment only
Pathway elimination
Removal
17 Implement BMPs For active soil management
18 Implement AUL, if needed
19 Document NSR has been achieved (including asbestos fibers in soil, where applicable)
20 Only asbestos fibers in soil (no ACM source material)
21 Self-manage with appropriate BMPs
22 Done
23 RAO
yes
no

Description of Flowchart (Figure 1)

Box **Description**

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1. *ACM in/on soil (outside a building)*
This policy does not apply to soil in the interior of a building, such as crawl space or dirt floor. Asbestos in interior soils would continue to be governed by BWP in accordance with 310 CMR 7.15.

2. *Exempt from MCP notification*
M.G.L. c.21E and the Massachusetts Contingency Plan (MCP) already exempt asbestos emanating from building materials that are still serving their intended purpose. Proposed changes to the MCP will specifically add an exemption from notification (310 CMR 40.0317) for large, relatively intact ACM that would be handled as an "abatement" via 310 CMR 7.15.

3. *Leave ACM in original location?*
DEP recognizes that leaving in place buried ACM pipes, ducts, or other historic building components that are largely intact (or are in discrete pieces) and are in the location in which they were originally placed for service will avoid asbestos releases and potential exposure, if plans for the property allow this. However, if these components need to be moved, the asbestos must be abated in accordance with 310 CMR 7.15.

4 – 8 *Abate Asbestos per 310 CMR 7.15*
- Notify BWP
- Implement BMPs (see appendix D)
- Remove ACM and at least 6 inches of soil surrounding ACM
- No confirmatory sampling needed to complete abatement

9. *Triggers MCP 2-hr or 120-day Notification?*
MCP notification criteria would focus on (a) ACM that is not intact, (b) ACM that has been scattered over a wide area, and (c) ACM that is or has become friable.

10 - 11 *Eligible for LRA? / Conduct LRA?*
If site conditions have triggered 120-day notification, a Limited Removal Action (LRA) may be appropriate. The MCP currently allows up to 20 yd^3 of soil contaminated by a hazardous material such as asbestos to be removed. LRA's are voluntary. Site-specific circumstances, such as financing and construction sequencing, may determine whether an LRA can be completed within 120 days. Notification to BWP and compliance with 310 CMR 7.15 would be required, as noted in Section 2.

12. *Notifiable Condition Eliminated?*
The goal for an LRA is the elimination of the condition that triggered 21E notification.

13. *Notify 21E Program*
Notification following identification of a 2-hour or 120-day notification condition. A Release Tracking Number (RTN) will be assigned and MCP timelines begun.

14 - 18 *MCP Site Assessment & Remediation Process*
These boxes summarize the standard MCP process, which would apply to asbestos sites. DEP has developed extensive guidance relevant to these steps.

19. *Document that NSR exists or has been achieved (including asbestos fibers in soil, where applicable)*
The documentation may include (but is not limited to) a demonstration that exposure has been eliminated, that the residual asbestos poses NSR, or that the asbestos is at background levels (See Section 3).

20 - 21 *Asbestos Fibers in Soil With No Source Material*
"Background" levels of asbestos fibers in soil (in the absence of source material) would not require notification under the MCP. In addition, since BWP regulations (310 CMR 7.15) address facilities and facility components, no notification to BWP would be required to manage the soil.

22. *Done*
Project is complete.

23. *RAO*
The site has reached an endpoint under the MCP, which could include Class A, B or C RAOs. The RAO may qualify the site for liability relief under the Brownfields Act.

ASBESTOS IN SOIL
STREAMLINING REGULATION AND MANAGEMENT

TECHNICAL SUPPORT DOCUMENT

This Technical Support Document elaborates on the policy for streamlining regulation and management of asbestos in soil. This document describes recommendations for notification, case management, cleanup decisions, analytical methods for site assessment and risk characterization, disposal of excavated soil containing asbestos, and implementation. Appendices to this document contain specific proposals for amending DEP regulations (310 CMR 40.0000, 310 CMR 7.15, and 310 CMR 19.000), and draft guidance on "Best Management Practices for Bulk Loading of Asbestos Containing Material in Soil".

1. Recommendations for Notification

Figure 2 summarizes the proposed notification requirements described below. These are intended to provide clear guidance for required notification to DEP for asbestos found in the environment. The notification requirements proposed under the MCP identify the types of "asbestos in soil" situations that could pose a significant risk if they are not addressed (i.e., assessed and cleaned up if necessary). Other situations in which asbestos containing material is found in the environment are considered to be hazardous only at the point when the asbestos is going to be excavated, handled, or otherwise "managed"; notification to BWP when plans for handling are developed will ensure a) that the work does not create risk by releasing asbestos to the air, and b) that asbestos-containing waste material is managed appropriately.

The proposed approach is consistent with current MCP notification principles, which require notification of sites that are likely to pose a significant risk to public health, safety, welfare, or the environment if they remain unaddressed, and does not require notification of sites where current and foreseeable conditions are not likely to pose a significant risk. The proposal also clarifies the notification requirements in DEP's Air Pollution Control Regulations (310 CMR 7.00 and 7.15), to ensure that asbestos in soil at projects that are regulated by these regulations is properly managed during excavation and does not create a "condition of air pollution".

The recommendations summarized below about the timing and nature of notification reflect discussions about appropriate ways to manage the risks presented by asbestos found in soil in its most common forms.

- **BWP notification would continue to be required whenever asbestos-containing material in soil is going to be excavated or otherwise disturbed by remediation or construction, unless the work is directed by a Licensed Site Professional ("LSP") during an MCP assessment/remediation.** This notification is required under 310 CMR 7.15 and BWP will continue to use existing procedures (e.g., notifications are submitted at least 10 days prior to the start of work unless BWP waives the deadline, and contain the same information that BWP currently receives). This notification allows BWP to insure the safe handling of asbestos-contaminated soil and the implementation of appropriate "Best Management Practices"(BMPs), to prevent further releases, in accordance with DEP's air quality rules and NESHAP delegation. This requirement satisfies the notification requirements of DOS and the US EPA (for whom BWP acts as the reporting "intake" agency).

  A BWP notification would be required for excavation and removal of buried but intact pipes, ducts, boilers, and other components that contain or are wrapped with asbestos containing

material, unless the work is directed by an LSP during an MCP assessment/remediation. A BWP notification would also be required for removing (or relocating) components that are either mostly intact, but may have been cut or broken. In general, a BWP notification would be required when a component or pieces of the original component will be moved from its original trench or underground location. This would include cement pipes that have been "burst in place", and pipes or boilers that are discovered when a backhoe breaks into them.

If asbestos-containing components are found in soil at a site that has other oil or hazardous materials that have been reported under the MCP and if the owner has notified BWSC specifically about the asbestos, then the components would be abated under the oversight of an LSP (and a licensed asbestos contractor) without filing a separate notification with BWP. To establish this exemption clearly, we are proposing a specific revision of 310 CMR 7.15 (1).

The single notification to DEP for asbestos and asbestos-containing material that is being excavated, handled, or otherwise moved also serves to satisfy federal NESHAP and Massachusetts Division of Occupational Safety (DOS)[1] notification requirements. (If DEP did not accept these notifications, parties seeking to conduct abatements would still need to notify DOS and the US EPA separately.) Under this proposal, some of the notifications that would otherwise be submitted to DEP/BWP would be submitted to DEP/BWSC concurrent with MCP plans. DEP intends to set up internal operating procedures to ensure that this single notification will continue to meet all the DEP, DOS and EPA requirements. To insure that the appropriate information is collected, DEP is considering two alternatives: (1) adding the information that is currently submitted to BWP (via the ANF-001 Form) to the relevant BWSC forms, and (2) requiring that an ANF-001 Form be submitted concurrently with the appropriate MCP document (e.g., a RAM or IRA Plan). DEP seeks comments on which approach would work better for the regulated community.

- **Notification requirements are proposed for the MCP, consistent with its existing framework for sudden, time critical, and historic releases.**

    - The existing 2-hour reporting requirement for any sudden release of asbestos (such as during improper building demolition) that exceeds the Reportable Quantity of one pound (310 CMR 40.0311) would be retained. The one-pound criterion would be applied to the asbestos itself and not to the weight of the Asbestos-Containing Material (ACM), which is the most common form in which asbestos is released into the environment. The RQ is intended to address sudden releases of asbestos, not ACM.

    - A new 2-hour reporting requirement is proposed for certain types of Debris[2] containing individual material(s) in which friable asbestos is present in concentrations equal to or greater than 1%, and which are found on the soil surface. The forms of asbestos covered by this requirement will be limited to friable materials that readily release asbestos fibers to the surrounding environment, such as asbestos-containing insulating materials, spray-on fireproofing, plaster, and ceiling tiles. The combination of high exposure potential

[1] DOS uses the information to ensure that the asbestos contractors it licenses are performing in accordance with its rules.

[2] "Debris" is used in this proposal as it is already defined in the MCP (310 CMR 40.0006). To summarize, "Debris" means solid material that is a manufactured object, plant or animal matter that is intended for disposal or is otherwise no longer serving its intended use, including demolition and construction waste.

and likelihood of airborne asbestos fibers is a combination that *could* pose an Imminent Hazard, similar to existing requirements [310 CMR 40.0321(2)(b)] for other hazardous materials. This reporting threshold would also apply to Debris containing these materials that is uncovered (i.e., made surficial) during an excavation. For this type of notification, asbestos would need to comprise 1% or more of each individual material in which it is found (as opposed to 1% or more of all the Debris at the site).

A 2-hour report is appropriate because these conditions have the potential to pose the highest hazard to public health from asbestos in soil, where it is most likely to become airborne and reach receptors. As with any 2-hour notification under the MCP, an Immediate Response Action (IRA) would be conducted to identify and implement any action needed to prevent exposure to surficial asbestos (e.g., removal or cover).

- A new 120-day reporting requirement is proposed for Debris containing individual material(s) in which asbestos is present at a concentration equal to or greater than 1% and located in accessible soil (on the ground surface and down to three feet below the ground surface, pursuant to 310 CMR 40.0933(4)(c). This notification requirement would use a newly defined term, "Debris Containing Releasable Asbestos from Nonfriable Sources", which would include material that was originally non-friable but which has become friable due to the actions of weathering, demolition or other forces. The forms of asbestos covered by this requirement are generally a subset of the federal definition of "Regulated Asbestos-Containing Material" ("RACM")[3], such as roof tiles, shingles, pipe, roofing felts, caulking putties and stucco that have become friable or pulverized. However, "Debris Containing Releasable Asbestos from Nonfriable Sources" would not include material that is currently in a non-friable state and is not broken or otherwise releasing fibers to the environment.

- A new 120-day reporting requirement is proposed for Debris containing individual material(s) in which friable forms of asbestos are present at concentrations equal to or greater than 1% found either on the soil surface, but more than 500 feet from receptors, or below the ground surface at any depth. The forms of asbestos covered by this requirement would be limited to materials that readily release asbestos fibers to the surrounding environment, such as friable asbestos-containing insulating materials, spray on fireproofing, plaster, and ceiling tiles.

- No MCP notification is proposed for asbestos if the site conditions do not otherwise pose an Imminent Hazard, and

  - asbestos is present at the site only in the form of unconsolidated fibers in soil (with no identifiable source);

[3] RACM ("Regulated Asbestos-Containing Material") is (a) friable asbestos material (e.g., thermal, fire-proofing or acoustic insulation), (b) Category I non-friable ACM (e.g., gaskets, resilient floor covering or asphalt roofing product) that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM (cementious pipe, shingles, roof tiles, transite board) that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material…(EPA-340/1-90-018).

- the concentration of asbestos in individual friable or non-friable material(s) at the site is less than 1%, regardless of depth and location;

- asbestos is present in non-friable material(s) located more than 3 feet below the ground surface.

The proposed 120-day notification conditions would allow for the implementation of a Limited Removal Action (LRA) at sites with small quantities of asbestos-containing soils (20 yd^3) to eliminate the need for notification under the MCP.

In general, asbestos in a truly nonfriable matrix is considered to pose less of a risk than friable asbestos. However, DEP recognizes that, with exposure to weather over time, nonfriable matrices can deteriorate and become friable, or decompose so that a mixture of unconfined asbestos fibers and debris is present in the environment. In practice, this approach may bring much of the ACM found in the environment into the 21E system (even if it started out as non-friable), because once it has been dumped in the environment, breakage during dumping and weathering over time starts to break up most ACM matrices, and fibers are released. U.S. EPA has established definitions and procedures (RACM) for determining if a material is of regulatory concern due to its current condition and the likelihood of its releasing fibers during abatement, regardless of the friability of the original source material. In order to clarify and standardize the MCP notification requirements, we intend to reference specific materials (e.g., acoustic insulation) where possible, and to add an MCP definition for "Debris Containing Releasable Asbestos from Nonfriable Sources", which closely parallels the EPA RACM definition. For the purposes of ensuring proper management of asbestos that has already been released into soil, this new definition focuses on non-friable materials only when they have already become friable or pulverized.

Please also note that the MCP requires notification decisions to be made based on current conditions at the site (in terms of potential for exposure). A site may not need to be reported based on current activities that are taking place there (e.g., asbestos-containing debris is more than 3 feet below the ground surface and no development or excavation is planned). However, if site uses change so that people can be exposed to detected contamination, there may be a reporting obligation. Most owners who have specific plans for redeveloping their property consider the new activities and uses when they make their reporting decisions. Low levels of contamination at property for which there are no development plans can remain unreported as long as site conditions do not change.

This policy focuses on the situations where notification to DEP of asbestos that has been released into the environment would be required, and the resulting requirements for cleaning up or abating that asbestos. As described above, this proposal also establishes *de minimus* thresholds for these notifications; some situations would not need to be reported to DEP. However, please note that, when DEP learns of locations where construction and/or demolition debris (which may or may not contain asbestos) has been improperly disposed of, the Department may take enforcement action for improperly disposing of these materials (under 310 CMR 19.000) and/or failing to properly abate asbestos during demolition or renovation activities (under 310 CMR 7.00), as appropriate.

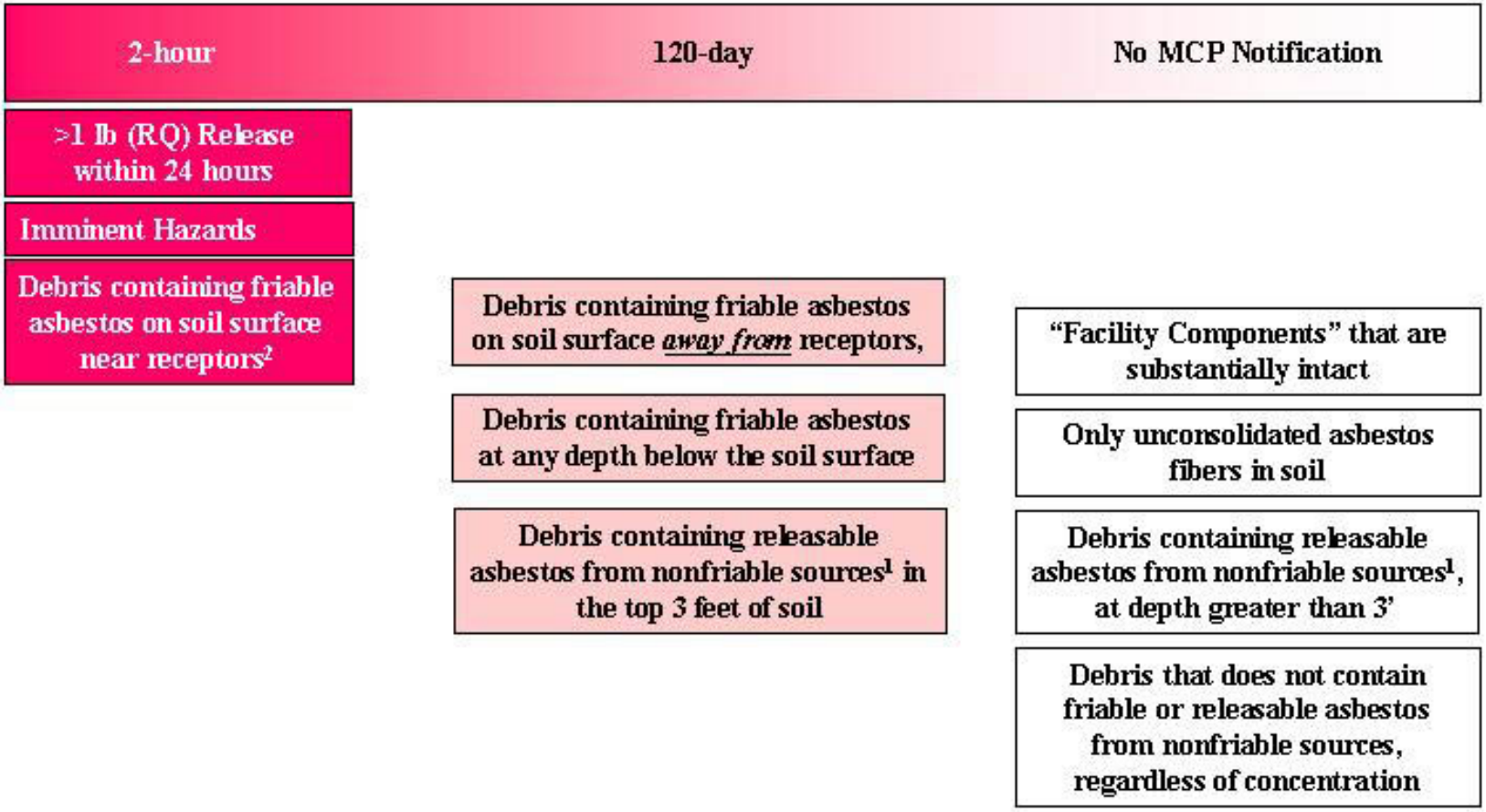
The recommendation to require neither MCP notification nor BWP notification for active management of unconsolidated asbestos fibers in soil unless there is an identifiable source material is based on a detailed review of the available analytical methods for asbestos in soil, which confirms that, at the present time, there is no standard analytical method available to reliably quantify asbestos fibers in a soil matrix. The currently available approaches can determine whether asbestos fibers are "present" or "not present" in the sample. Notification criteria based on "present/not present" results would be very crude measures of the potential risk posed by the site. Currently, the analytical methods cannot reliably differentiate between

high and low risk sites. Most asbestos sites that have come to DEP's attention include at least some Debris containing asbestos that would otherwise trip one of the proposed notification requirements. In addition, data that is now available from the use of the U.S. EPA elutriator method at actual sites indicate that low levels of asbestos fibers in soil alone (without source debris) may pose low-to-moderate health risks, so that the existing notification requirement for Imminent Hazards can be used to address sites not otherwise captured by the proposed criteria. As improved analytical methods are developed specifically for asbestos fibers in soil, DEP may revisit this issue. This approach would allow soil containing unconsolidated fibers that exist in the absence of material likely to be the source of the fibers to be managed and disposed of without oversight by the Commonwealth, although DEP recommends that "best management practices" (see Appendix D below) be followed to prevent asbestos from becoming airborne during excavation and handling.

Please note that, as with any other Oil or Hazardous Material regulated by the MCP, no Activity and Use Limitation would be required to mark the presence of asbestos in soil that is not reportable under the MCP.

Figure 2

Proposed MCP Notification Requirements Applicable to Asbestos



[1] A subset of the US EPA term "RACM", including non-friable ACM that has become friable and non-friable ACM that has become crumbled, pulverized, or reduced to powder.

[2] Written similar to 310 CMR 40.0321: on soil surface soil at any location within 500 feet of an occupied building, school, playground, recreational area or park.

2. Recommendations for Case Management

- Abatements of asbestos-containing structures under 310 CMR 7.15: Inactive pipes, boilers, ducts, etc., can be left in place at the discretion of the property owner. If they need to be moved (or removed) and are mostly intact, they would continue to be abated with BWP notification and standard abatement techniques, as well as "Best Management Practices" for bulk soil handling where applicable (see Appendix D below for draft guidelines.

  To complete an abatement project, all visible asbestos-containing material will need to be removed, along with an additional 6 inches of soil immediately surrounding the structure. No confirmatory soil samples will be required to complete the abatement, since removal of the additional 6 inches will be presumed to have removed most fibers emanating from the material.

- Abatement of other asbestos-containing material in soil (e.g., fill) under 310 CMR 7.15: Non-friable asbestos-containing material (ACM) located at depths greater than 3 feet below the ground surface will not trigger notification to BWSC. This material may be left in place if plans for the property do not require its excavation; notification to DEP of its presence is not required. However, if the property owner or operator moves or removes the ACM, notice to BWP is required in accordance with 310 CMR 7.15.

  Where asbestos-containing structures or other ACM are left in soil, DEP recommends that the property owner keep a record of the residual asbestos-containing material and its location, and provide this information to the next property owner. It has been suggested that DEP require that the property owner record a notice on the deed noting the existence of residual asbestos-containing material (including pipes, boilers and other structures, as well as Debris containing broken pieces of asbestos-containing material). While this could be accomplished under the statutory authority of MGL c. 21E, §6 and MGL c. 111, §150(A), DEP does not believe that it is practical to require property owners to definitively locate all piping (which can extend for considerable distances underground where the property is the location of former "campus" developments in which steam pipes connected multiple buildings) or the boundaries of Debris that does not meet the MCP notification threshold (because it is not likely to pose a significant risk to public health or the environment). The costs of preparing the required survey or sketch plans (to meet the recording requirements of the Registries of Deeds and Land Court) are considerable, and DEP believes that these costs outweigh the public benefit of information that may be obtained by pre-construction site characterization in support of specific development plans when needed.

  While other forms of notice have been established via specific statutes (e.g., property buyers are informed of lead paint and urea formaldehyde insulation at closing), no specific statutory authority establishes notice in forms other than in property deeds for asbestos. DEP solicits input on this issue, particularly on the question of whether there are alternative forms of notice that could be required under the agency's current statutory authorities that would be less burdensome to implement.

- Small volumes of asbestos in Debris triggering a 120-day MCP notification can be managed via the MCP's Limited Removal Action (LRA) provisions. Where only a 120-day reporting threshold is exceeded and the Debris in soil is less than 20 yd^3, an LRA may be conducted to remove the Debris. The goal of an LRA is to eliminate the reportable condition, and

therefore the LRA must remove all visible Debris plus an additional 6 inches of soil immediately surrounding the Debris, or the site would need to be reported under the MCP (see below). LRAs are not required to be managed by an LSP, but they can exceed the federal NESHAP threshold for notification of demolition or renovation material (160 square feet of asbestos containing material or 35 cubic feet of facility components that cannot be otherwise measured). Therefore DEP proposes that notification would be required to BWP under 310 CMR 7.15. As noted above, if DEP is not notified, then the parties conducting these excavations would need to notify the Mass. Division of Occupational Safety and U.S. EPA separately.

- Asbestos in Debris exceeding LRA limits would be managed under the MCP. LSPs would provide Waste Site Cleanup Opinions to ensure that assessments and remediation meet the MCP's requirements (see Sections 3 and 4 below). Management of asbestos-contaminated soil under the MCP would not require additional BWP "10-day" notification. BWP "Best Management Practices" would be implemented during excavation to avoid releasing asbestos into the air. LSPs would need to rely on asbestos consultants and contractors licensed by the Division of Occupational Safety, who would continue to provide the same services that they do today.

- BWSC staff would audit reports involving asbestos contamination as they currently do for other contaminants. During a transition period, BWP asbestos staff will provide technical assistance for these audits.

- DEP retains its existing authority to pursue enforcement actions for improper demolition or renovation involving ACM that result in releases of asbestos into the environment (under 310 CMR 7.00), and for improper/illegal disposal of construction and demolition debris (under 310 CMR 19.000) that come to the agency's attention. The application of cleanup standards at sites where illegal disposal of construction and demolition debris has occurred will be determined by DEP on a case-by-case basis, and may be the subject of future policy development under the Department's Enforcement Response Guidelines.

3. Recommendations for Cleanup Decisions ("How Clean is Clean Enough?")

- Debris containing individual material(s) in which asbestos is present at a concentration equal to or greater than 1% in accessible soil (0-3 feet, unpaved) is proposed to be defined in the MCP as a "source of asbestos to ambient air", triggering the existing requirement [310 CMR 40.1003(5)] to eliminate or control each source of OHM in order to achieve a Permanent Solution. Source control can be achieved by installing a barrier (e.g., pavement) to make the soil inaccessible and by implementing an Activity and Use Limitation. An Activity and Use Limitation would be required for Releasable Asbestos Containing Debris remaining at depths below 3 feet to prevent the asbestos from becoming a source to ambient air when it is excavated (unless a demonstration is made that it would present an insignificant risk, as per the next to last bullet in this section).

- A risk-based approach would be used to make "how clean is clean enough" decisions for sites involving asbestos in soil under the MCP Method 3 risk characterization rules. This approach includes the use of measures to eliminate potential exposure (such as a cap), as well as those that reduce environmental concentrations (such as removal and disposal).

- Low levels of asbestos fibers at 21E sites would be allowed to remain in some soil matrices without a barrier and AUL where it can be demonstrated that the asbestos presents an insignificant exposure (and therefore an insignificant risk) because its disturbance would not release enough fibers into the air to reach receptors. A decision to leave such low levels of asbestos in soil without a barrier to exposure must be based on a demonstration that the risks are truly insignificant, based on one of the methods described in Figure 3.

  DEP is considering the development of guidance for this demonstration, which would include several analytical options that could be used to support an LSP's Opinion that a condition of No Significant Risk has been achieved. These options would include the use of DEP's "dust generation" model, EPA's "Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Materials " (i.e., the "Tumbler Method"), or performance of a site-specific pilot study (See Figure 3). The MCP compliance concentration for demonstration of "No Significant Risk" for residential exposures would require risks to be reduced below a range of 1 x 10 –5 to 1 x 10 –6, or 0.00004-0.0004 structures/cm^3 in the ambient air as a 30-year average Exposure Point Concentration. The demonstration would need to address both "on-site" and "off-site" receptors that could be affected by airborne asbestos, as well as any specific characteristics of the type(s) of asbestos containing Debris that has been found at the site. DEP solicits comment on issues that such guidance should address.

- At sites where notification is not currently required, remediation may still be necessary to eliminate a Significant Risk, pursuant to 310 CMR 40.0370. While such response actions would be conducted without the submittal requirements, approvals and fees of the MCP, management of the contaminated soil would still be subject to any applicable BWP requirements, including ANF-001 notification.

Figure 3

Options for Demonstrating "No Significant Risk" (NSR) for Closure Under the MCP

Eliminate/Control All "Continuing Sources", and Demonstrate One (or a Combination) of the Following Conditions:

1. Achieve "non-detect" levels of asbestos in soil

- No "chunks" of ACM
- PLM with some percentage TEM confirmatory samples

2. Achieve "background" levels of asbestos in soil

- Site-specific background would be determined

3. Eliminate exposure pathways

- Cover with paving, cap or building
- Cover with 3 feet clean soil

4. Demonstrate NSR using a quantitative risk assessment

- Superfund (Elutriator) Method to measure asbestos in respirable dust, combined with estimates/model of respirable dust concentration in air

$$\text{Risk} = [\text{Asbestos}]_{PM10} \times [PM_{10}]_{air} \times \text{Inhalation Exposure} \times \text{Unit Risk}_{asbestos}$$

5. Demonstrate NSR using another site-specific approach

4. Analytical Methods for Site Assessment and Risk Characterization

- To account for the variability of asbestos distribution in soil matrices, assessments should rely on an adequate number of samples, especially in relatively heterogeneous matrices (to meet data quality objectives), or rely upon methods that incorporate large volumes of soil per sample.

- No standard analytical method exists for measuring asbestos fibers in soil. Typically, methods designed for measuring asbestos in bulk material have been applied to the soil matrix, although the resulting data has been characterized as unreliable and not representative. It has been reported that some laboratories will now report asbestos as being "present" or "not present" in soil using these methods. Levels detected below 1% may also be reported by labs as traces. Some laboratories use the EPA Region 1 Protocol for measuring asbestos in soil and when requested will report asbestos as a percent in soil, even though the Region 1 Protocol itself states that the protocol is not meant to be used as a quantitative method.

  Both PLM and TEM can be used to analyze soil samples to determine the nature and extent of asbestos contamination (MCP Phases I and II), but are inadequate for use in a quantitative risk assessment. TEM identifies a variety of fiber types, including smaller and/or narrower fibers that may not be seen with PLM, due to increased magnification. Using the site's history and potential for human exposure as a guide, some portion of samples determined to be non-detect (ND) by PLM should be analyzed with TEM.

- The "Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Materials" (or "*Superfund Method*") is designed to measure the expected amount of asbestos released to the air in respirable dust from asbestos-contaminated soil. The results are measured in air (although they can also be reported in soil), relying upon standard and accepted protocols. Air measurements are directly applicable to the exposure pathway of concern (the inhalation route), and they may be used in combination with estimates of dust generation to quantify potential risk. DEP is currently using both this Method and the Region 1 Protocol to inform agency decisions at specific sites.

5. Disposal of Excavated Soil Containing Asbestos: "Special Waste" Exemption

Disposal options (or lack thereof) for soil containing low levels of asbestos fibers have been identified as a significant issue by the external workgroup. DEP currently defines soil containing <u>*any quantity*</u> of asbestos as a "Special Waste" under 310 CMR 19.000, with three exceptions:

> 310 CMR 19.061(6)(b)3. Requirements for certain classes of asbestos wastes. The following asbestos wastes are not subject to the provisions of 310 CMR 19.061 except as specified at 310 CMR 19.061(6)(b)1.a.:
>
> a. vinyl asbestos tile (VAT);
> b. asphaltic asbestos-containing materials such as roofing felts, roofing shingles and asphalt siding products (Note: This does not include other asbestos containing roofing shingles and siding products such as those containing a cementitious binding characterized as being hard and brittle.); and
> c. other asbestos waste designated by the Department.

DEP proposes to add a fourth criterion to the asbestos waste exemptions to allow soil containing unconsolidated asbestos fibers (with no visible asbestos containing source material) to be accepted by

in-state landfills as solid (not "special") waste. DEP plans to publish guidance for sampling protocols to document that soil directed to landfills for disposal is acceptably free of asbestos containing material.

In addition, DEP is currently considering developing a framework based on currently available analytical methods that would allow soil containing some unconsolidated asbestos fibers to be used as shaping/grading material at landfills, and possibly as daily cover at landfills. The extent to which DEP would allow reuse of soil containing asbestos fibers at landfills would depend on the capability of available analytical methods to reliably characterize the levels of fibers in the soil and the levels of risk that would be associated with the reuse. A landfill seeking to reuse soil containing unconsolidated asbestos fibers can do so with a Minor Modification of its Permit to Operate, as established in DEP's Policy #97-001, "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills". In the future, DEP may revise this policy to establish maximum concentrations of asbestos in soil for which reuse as alternative daily cover or grading/shaping material would be permitted without a specific permit modification.

Please note that the proposed change in 310 CMR 19.061 cannot guarantee that in-state landfills will accept this material, but it would be within their operating permit to do so without further DEP approval.

To ensure that people conducting response actions involving asbestos in soil under the MCP are aware of the regulatory requirements governing asbestos waste disposal, DEP is also proposing to revise 310 CMR 40.0032, "Contaminated Media and Contaminated Debris" to note the applicability of the Massachusetts Air Quality and Solid Waste regulations, and of the National Emission Standards for Hazardous Air Pollutants to disposal of soil containing asbestos.

6. Implementation

The proposed approach will require regulation amendments (of 310 CMR 7.15, 19.000, and 40.000), as well as guidance on "Best Management Practices" for handling asbestos-containing material during excavation and bulk loading, determining "how clean is clean enough", and sampling. These are contained in the following Appendices:

A. Proposed MCP Notification Amendments (310 CMR 40.0000) and Proposed Amendment to the Provisions for Management of Remediation Waste (310 CMR 40.0030)

B. Proposed Amendments to the Air Quality Regulations (310 CMR 7.00 and 7.15)

C. Proposed Amendments to the Solid Waste Regulations (310 CMR 19.000)

D. Draft Guidance: Best Management Practices for Bulk Loading of ACM Soil/Debris

DEP invites public comment on all aspects of these proposals. Once the Department has reviewed comments submitted and decides how to handle the issues raised, the agency will schedule a series of information sessions for asbestos contractors, LSPs, and the construction/development industry to explain the new requirements, and to assist with implementation.

Appendix A. Proposed Asbestos-Related Changes to the Massachusetts Contingency Plan

NOTE TO REVIEWERS: *The following changes are proposed to clarify the notification and cleanup requirements for asbestos fibers in soil and asbestos in Debris.*

Issue: The terms "friable" and "nonfriable" are used to, in part, determine notification requirements. Definitions are proposed that mirror the federal NESHAP definitions, modified slightly to reflect the differences between site assessment/remediation and abatement. Should the MCP define new descriptive terms to distinguish between material that has (or may) release asbestos fibers and material that is unlikely to release such fibers?

The notification triggers include:

- *2-hour notification requirement for specific kinds of friable asbestos in surficial soil near residences, schools, playgrounds and parks (40.0321); and*
- *120-day notification requirements for asbestos in Debris (40.0315). The notification criteria specify minimum size (3/8 inch diameter) and frequency of detection (3 pieces per 400 square feet or 3 pieces per 10 cubic yards) for notification. Comments are specifically sought on these criteria.*

Specific notification exemptions include:

- *asbestos fibers in soil, absent a known/suspected manufacturing source; and*
- *abandoned structures containing asbestos that are best dealt with as an abatement project.*

The sections related to cleanup requirements include:

- *Detailing that asbestos does <u>not</u> have an Upper Concentration Limit in Soil or Groundwater (40.0996); and*
- *Defining Debris comprised of material containing asbestos at concentrations greater than 1% in surficial soil to be a source to ambient air (40.1003).*

MCP Requirements for Notification and Cleanup of Asbestos

1. Definitions

A. Current – None specific to asbestos

B. Proposed

i. Debris Containing Friable Asbestos
means Debris comprised of any material greater than 3/8 inches in diameter and containing 1 percent or more asbestos by area that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure.

ii. Debris Containing Nonfriable Asbestos
means Debris comprised of any material greater than 3/8 inches in diameter containing 1 percent or more asbestos by area that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

iii. Debris Containing Releasable Asbestos from Nonfriable Sources
means (a) Debris Containing Nonfriable Asbestos that has become friable, or (b) Debris Containing Nonfriable Asbestos that has become crumbled, pulverized, or reduced to

powder. This term does not include asbestos-containing glue, adhesive or mastic that is not otherwise friable.

2. Exemptions

Current

i. 310 CMR 40.0006, Definition of "Disposal Site"
Disposal site means.... The term shall not include any site containing only oil or hazardous materials which: are building materials still serving their original intended use or emanating from such use...

ii. 310 CMR 40.0317(12), 120-day Notification Exemptions
releases of oil and/or hazardous material resulting or emanating from:...
(e) building materials that are in good repair and still serving their original intended use;

Proposed - 310 CMR 40.0317, 120-day Notification Exemptions

i. releases of asbestos from abandoned asbestos-containing structures, such as pipes, boilers or duct banks, that are intact or substantially intact. For the purposes of this section, "substantially intact" shall mean that the original structure remains recognizable, the visible asbestos-containing Debris appears to have originated from within the structure, and that the visible asbestos-containing Debris has not been dispersed more than one foot from the structure.

ii. releases indicated solely by the presence of unconsolidated asbestos fibers in soils, provided that the source of the asbestos fibers is not known or likely to be waste materials from asbestos product manufacturing.

3. 2-Hour Notification Requirements

Current

i. Imminent Hazards - 310 CMR 40.0321(1)(d)
a release to the environment of oil and/or hazardous material which poses a significant risk to human health when present for even a short period of time, as specified in 310 CMR 40.0950;

ii. Sudden Releases – 310 CMR 40.0311
Asbestos Reportable Quantity = 1 pound

Proposed: Conditions Which Pose or Could Pose an Imminent Hazard – 310 CMR 40.0321

a release to the environment indicated by the presence of either 1 cubic foot or more, or 1 pound or more, of Debris Containing Friable Asbestos consisting of insulation, fire-proofing, plaster or ceiling tiles at the ground surface at any location within 500 feet of an occupied building, playground, recreation area or park.

4. 120-Day Notification Requirements (310 CMR 40.0315)

A. Current – None for asbestos

B. Proposed:

1. **Debris Containing Friable Asbestos Not Posing an Imminent Hazard**
   a release to the environment indicated by the presence of 3 or more pieces of Debris Containing Friable Asbestos per 10 cubic yards or per 400 square feet, located
   a. at the ground surface, except where a 2-hour notification is required pursuant to 310 CMR 40.0321; or
   b. mixed in subsurface soil.

2. **Debris Containing Releasable Asbestos from Nonfriable Sources in Accessible Soil**
   a release to the environment indicated by the presence of 3 or more pieces of Debris Containing Releasable Asbestos from Nonfriable Sources per 10 cubic yards or per 400 square feet, in accessible soil pursuant to 310 CMR 40.0933(4)(c);

5. Upper Concentration Limits (UCLs)

40.0996: Method 3 Upper Concentration Limits

…

(8) Except as specified in 310 CMR 40.0996(8)(c), for any oil or hazardous material not listed at 310 CMR 40.0996(7), either a default or chemical-specific Upper Concentration Limit must be used.

(a) The default Upper Concentration Limit in Groundwater shall be 10,000 µg/L and the default Upper Concentration Limit in Soil shall be 1,000 µg/g.

(b) The chemical-specific Upper Concentration Limits shall be calculated using the methodology presented at 310 CMR 40.0983 and 310 CMR 40.0984.

1. The Upper Concentration Limit in Groundwater shall be equal to ten times the highest groundwater standard calculated at 310 CMR 40.0983 or 100,000 µg/L, whichever is lower.

2. The Upper Concentration Limit in Soil shall be equal to ten times the highest soil standard calculated at 310 CMR 40.0984, or 10,000 µg/g, whichever is lower.

(c) For the following oil and/or hazardous material, the Upper Concentration Limits in Soil and Groundwater are not applicable. As a result, the comparison of site concentrations to Upper Concentration Limits pursuant to 310 CMR 40.0996(3) is not required, and the need for an Activity and use Limitation shall not be determined by comparison to an Upper Concentration Limit in Soil, as described in 310 CMR 40.1012(2)(a)3. and 310 CMR 40.1012(3)(b).

1. asbestos

40.0030 Management of Remediation Waste

Currently, 310 CMR 40.0030 et. seq. establishes requirements that have been designed to ensure that contaminated media containing Oil and Hazardous Materials that could be regulated as "hazardous wastes" pursuant to MGL c. 21C and 310 CMR 30.000 are appropriately managed. While asbestos is already a listed Hazardous Material under the MCP, management of wastes containing asbestos is regulated by the Massachusetts Air Quality Regulations [310 CMR 7.15 (e)] and Solid Waste Management Regulations (310 CMR 19.061), and by the National Emission Standards for Hazardous Air Pollutants (40 CFR 150 et. seq). Therefore, a new paragraph is proposed to be added to 310 CMR 40.0032 ("Contaminated Media and Contaminated Debris" to direct people who are conducting response actions to the appropriate requirements for handling asbestos-contaminated soil.

In addition, an amendment of the "anti-degradation" provisions of the MCP in 310 CMR 40.032(3) is proposed to clarify that management of asbestos fibers in soil that would be exempt from both MCP and BWP asbestos program notifications would remain subject to the MCP's "anti-degradation" provisions.

40.0032 Contaminated Media and Contaminated Debris

…

(3) Soils containing oil or waste oil at concentrations less than a release notification threshold specified in 310 CMR 40.0300 and 40.1600, and that are not otherwise a hazardous waste, and soils that contain one or more hazardous materials at concentrations less than a release notification threshold, and that are not a hazardous waste, **and soils containing unconsolidated asbestos fibers that are exempt from notification as specified in 310 CMR 40.0317,** may be transported from a disposal site without notice to or approval from the Department under the provisions of this Contingency Plan, provided that such soil:
   (a) Is not disposed or reused at locations where the concentrations of oil or hazardous materials in the soil would be in excess of a release notification threshold applicable at the receiving site, as delineated in 310 CMR 40>0300 and 40.1600; and
   (b) Is not disposed or reused at locations where existing concentrations of oil and/or hazardous material at the receiving site are significantly lower than the levels of those oil and/or hazardous materials present in the soil being disposed or reused.

(4) Soil contaminated solely with Asbestos Waste (as defined in 310 CMR 7.15 and 310 CMR 19.000, including Debris Containing Friable Asbestos and Debris Containing Nonfriable Asbestos) and soil contaminated with Asbestos Waste and oil and/or hazardous materials that are not categorized as hazardous waste pursuant to 310 CMR 30.000, and that is associated with response actions conducted pursuant to 310 CMR 40.0000 and/or with abatement work conducted pursuant to 310 CMR 7.15, shall be managed in accordance with:
   (a) The work practices and disposal requirements described in 310 CMR 7.15(e);
   (b) The use of a Waste Shipment Record to accompany off-site shipments for disposal described in 40 CFR 61.150(d); and
   (c) Disposal in an appropriate facility in accordance with 310 CMR 19.061.

Note to Reviewers: DEP solicits comment as to whether soil contaminated with Asbestos Waste and oil or hazardous material that is not categorized as a hazardous waste should be accompanied by a NESHAP Waste Shipment Record or an MCP Bill of Lading (which

would provide an LSP Opinion that the soil is being properly managed, a provision that would not result with the use of the NESHAP Waste Shipment Record).

(5) Soil contaminated with Asbestos Waste (as defined in 310 CMR 7.15 and 310 CMR 19.000) and one or more hazardous wastes shall be managed in accordance with the provisions of 310 CMR 30.000, and shall use a Hazardous Waste Manifest to accompany off-site shipments for disposal.

40.1003: General Provisions for Response Action Outcomes

…

(5) A Class A or Class B Response Action Outcome shall not be achieved unless and until each source of oil and/or hazardous material which is resulting or is likely to result in an increase in concentrations of oil and/or hazardous material in an environmental medium, either as a consequence of a direct discharge or through intermedia transfer of oil and/or hazardous material, is eliminated or controlled.

(a) Such sources may include, without limitation:
   1. leaking storage tanks, vessels, drums and other containers;
   2. dry wells or wastewater disposal systems which are not in compliance with regulations governing discharges from those systems;
   3. contaminated fill, soil, sediment and waste deposits; and
   4. non-aqueous phase liquids.

(b) For the purposes of 310 CMR 40.1003(5), the presence of Debris Containing Friable Asbestos or Releasable Asbestos from Nonfriable Sources in accessible soil pursuant to 310 CMR 40.0933(4)(c) is defined to be a source to ambient air.

(c) For the purposes of 310 CMR 40.1003(5), the downgradient leading edge of a plume of oil and/or hazardous material dissolved in and migrating with groundwater shall not, in and of itself, be considered a source of oil and/or hazardous material.

APPENDIX B. Proposed Revisions to the Air Quality Regulations

Note to Reviewers: Underlined text denotes proposed additions to this regulation. ***Bold text*** *denotes a "Note to Reviewers". Please note: in February 2004, DEP proposed to amend the definition of "Asbestos Containing Material"so that the quantity of asbestos in the material would be measured by weight, rather than by area (this change is being made to conform this definition to the federal NESHAPs definition. The amendment package also included corrections of some typographical (spelling) errors in 310 CMR 7.15 and an update of a regulatory citation. Public hearings on these (and other) amendments were held in Spring 2004, but final regulations have not been promulgated as of this writing. These proposed amendments can be found on DEP's web site (visit http://www.mass.gov/dep/bwp/daqc/daqcpubs.htm#regs and click on the sixth document listed).*

7.15: U Asbestos

(1) Standards for Demolition/Renovation

(a) Applicability**.** No person shall cause, suffer, allow, or permit the demolition/renovation, installation, reinstallation, handling, transporting, storage, or disposal of a facility or facility component that contains asbestos, asbestos-containing material, or asbestos-containing waste material in a manner which causes or contributes to a condition of air pollution.

(b) Notification. Each owner/operator of a demolition/renovation operation involving asbestos-containing material shall:

1. Provide the Department with all information required on a Department-approved form with respect to the intended demolition/ renovation operation of a facility or facility component. A waiver to the notification provisions contained in 310 CMR 7.15(1)(b)2.a. and b., may be granted by the Department in the case of an emergency.

2. Postmark or deliver all required information to the applicable Department regional office:

a. at least ten working days before a demolition/renovation operation begins, or

b. within one working day prior to the beginning of an emergency demolition/renovation operation unless a waiver is granted by the Department, or if less than one working day, notification shall be made initially by telephone with written follow-up, or

c. where an owner/operator receives written Department approval of a planned demolition/renovation operation occurring during a 12 month period, provide revised information as required by the Department in writing, and a monthly report of updated information for actual work performed.

3. Include but not be limited to the following information on the Department-approved form:

a. Name, address, and telphone number of the facility owner, operation manager, if any, contractor, and subcontractor, if any, contractor's or subcontractor's Massachusetts asbestos removal certification and licensing number, if any;

b. Description of the facility being demolished and renovated,

including the address, worksite location or locations as described in 7.15(1)(b)2.c., size, age, and prior and current use of the facility;

c. Estimate amount (in lineal feet or square feet) of the approximate amount of asbestos-containing materials to be handled under this application with a description of the techniques used for the estimation;

d. Scheduled start-up and completion dates of the demolition/renovation operation, transportation, storage at a refuse transfer station facility (if applicable), and disposal at a sanitary landfill site of the asbestos-containing waste material; if the demolition/renovation start-up or completion date changes or is cancelled ensure that notification is made in writing at least one working day prior to the originally-scheduled start date of the operation;

e. Description of proposed demolition/renovation operation and procedures to be used;

f. Name, address, and telephone number of the transporter company(s) responsible for transporting asbestos-containing waste materlal from the demolition/renovation site to storage site, if any, and to final disposal site;

g. Name, address, and telephone number of the refuse transfer station facility and owner responsible for storing the asbestos-containing waste material prior to final transport and disposal at a sanitary landfill site;

h. Name, address, and telephone number of the sanitary landfill facility and owner where the asbestos-containing waste material will be disposed;

i. For a facility described as an emergency demolition/renovation operation, the name, title, and authority of the state or local government official who evaluated the emergency and ordered the operation;

j. Date and signature of the facility owner/operator or facility owner's designee and date and signature of the contractor.

4. Separate notification will be required, except as to 310 CMR 7.15(1)(b)2.c., when:

a. demolition/renovations are scheduled for widely-spaced geographical locations on the same facility;

b. demolition/renovations are scheduled for a single facility, but are separated by a time period of greater than one week; or

c. when a demolition/renovation is postponed more than 30 days from the date on the initial notification.

5. Notwithstanding the requirements of 310 CMR 7.15 (b) (1-4), management of asbestos-containing material in soil at a disposal site for which response actions are being conducted pursuant to MGL c. 21E and 310 CMR 40.0000 (the Massachusetts Contingency Plan) does not require notification pursuant to this section, except when the response action is a "Limited Removal Action" conducted pursuant to 310 CMR 40.0318 (these require notification to DEP pursuant to this section).

6. Notwithstanding the requirements of 310 CMR 7.15 (b) (1-4), management of unconsolidated asbestos fibers in soil in the absence of material deemed to be the source of such fibers does not require notification pursuant to this section.

7. Management of unconsolidated asbestos fibers in soil in the absence of asbestos-containing material that is the source of the fibers does not require notification pursuant to this section, unless the fibers result from asbestos manufacturing, fabricating, milling, or spraying operations.

Note to Reviewers: Federal NESHAP regulations require notification of management of any amount of asbestos that resulted from manufacturing, fabricating, milling, or spraying operations, with no *de minimis* levels. If DEP is not notified of situations where fibers from these operations are found in the environment, then EPA will need to be notified separately.

(c) Procedures for Asbestos Emission Control. Each owner/operator shall comply with the following procedures to prevent visible or particulate emissions to the ambient air space:

1. Remove any asbestos-containing material from a facility or facility component prior to demolition/renovation operations if such operations will cause asbestos emissions, or will render the asbestos-containing material friable, or will prevent access to the asbestos-containing material for subsequent containment and removal;

2. When a facility component covered or coated with asbestos-containing material is being removed as units or in sections:

a. Adequately wet asbestos-containing material exposed during the removal operations;

b. Lower the units or sections to the ground level so as to not cause airborne emissions of asbestos; and

c. Ensure no release of asbestos to the ambient air space during removal of asbestos from these units or sections handled so as to ensure:

i. maintaining adequate wetness of the asbestos-containing material, and

ii. sealing the work area and using a local exhaust ventilation and collection system designed and operated to capture particulate asbestos material. This system must exhibit no visible or particulate emissions to the outside air and be designed and operated in accordance with the requirements of 7.15(1)(d), Air Cleaning;

3. When asbestos-containing material is being removed from a facility component the following procedures shall be performed:

a. Ensure that such material is adequately wet;

b. Contain the material *in situ* of the facility component;

c. Lower the contained material carefully to the ground so as to prevent emissions;

d. Ensure no release of asbestos emissions by methods of capture and

containment of fugitive dust such as work area seal and air cleaning, as described in 310 CMR 7.15.

4. Once the asbestos-containing material have been removed and wetted, ensure that the material remains wet until and after it is sealed into a container for disposal.

(d) Air Cleaning. The owner/operator using air cleaning at a facility shall properly install, use, operate, and maintain all air-cleaning equipment authorized by 310 CMR 7.15(1)(d). Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos-containing material. Each owner/operator shall use one of the following air cleaning systems or their equal:

1. Use fabric filter collection devices and perform the following:
   a. operate the fabric filter collection devices at a pressure drop of no more than four inches water gauge, as measured across the filter fabric;
   b. ensure that the air flow permeability, as determined by ASTM Method D737-75, does not exceed 350 $ft^3/min/ft^2$ for felted fabrics;
   c. ensure that felted fabric weighs at least 14 ounces per square yard and is at least 1/16 inch thick throughout; and
   d. avoid the use of synthetic fabrics that contain fill yarn other than that which is spun; or
2. Use portable, high efficiency particulate air (HEPA) filtered power exhaust units equipped with negative air pressure systems with operational alarm system capable of indicating the unit is working properly, and utilizing a clean filter specified for the unit and capable of filtering 0.3 micron particles with 99.97% efficiency; or
3. In the event that the use of an air cleaning system causes a fire or explosion hazard, the Department may authorize as a substitute
   a. the use of wet collectors designed to operate with a unit contracting energy of at least 40 inches water gauge pressure; or
   b. the use of filtering equipment other than that described in 310 CMR 7.15, if the owner/operator demonstrates to the Department's satisfaction that it is as efficient in filtering particulate asbestos material.

(e) Waste Disposal. Each owner/operator shall:

1. Discharge no visible or particulate emissions to the ambient air during the collection, processing, packaging, transporting, transferring, or disposing of any asbestos-containing waste material, and use the disposal methods specified in 310 CMR 7.15(1)(e) such that the asbestos-contalning material is non-friable;
   a. adequately wet asbestos-containing waste material obtained from air cleaning equipment or from removal operations and, while wet, containerize and seal the asbestos-containing waste material in leak-tight containers, labeled

CAUTION
Contains Asbestos

Avoid Opening or
Breaking Container
Breathing Asbestos is Hazardous
to your Health

or, use warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA), or

b. process asbestos-containing waste material into non-friable form such as pellets or other shapes; or

c. use an alternative processing method that has received prior approval by the Department.

2. Store at an approved refuse transfer station facility (if applicable) in accordance with 310 CMR 18.00 requirements for storage of special waste.

3. Dispose of asbestos-containing waste material at an approved sanitary landfill special waste site. If within Massachusetts, such sites must be operated in accordance with 310 CMR 19.00. Outside Massachusetts, such sites must be operated in accordance with applicable state and federal asbestos laws.

(f) Spraying. No owner/operator of a facility shall spray on any facility or facility component any asbestos-containing material.

(g) Insulating Material. No owner/operator of a facility may install or reinstall on a facility or facility component asbestos-containing insulating material.

[Note to Reviewers: As noted in the preceding discussion document, DEP is considering whether to require owners of property on which asbestos-containing material remains after the completion of an abatement pursuant to this section to notify subsequent property owners of the continued presence of this material. These materials can include underground pipes, ducts, boilers, and other structures that are largely intact, as well as debris that may contain pieces of asbestos-containing material.

One method for providing such notice would be to require the property owner to record a notice on the deed. If a deed notice were to be required, it would have to meet the standards of the Registries of Deeds and Land Court for these instruments, and could be accomplished by inserting a new (i) in this section. This regulation would be promulgated under the statutory authority of MGL c. 21E §6 and MGL. C. 111, §150(a)]:

(i) Record Notice of Asbestos-Containing Material Remaining On-Site. Notification that Asbestos-Containing Material or Asbestos-Containing Waste Material remains in soil after the completion of an abatement pursuant to 310 CMR 7.15 shall be recorded in the registry of deeds or in the registry section of the land court for the district wherein the property lies. The notification shall contain the following:

(a) identification of the record owner(s) of the property;

(b) a description of the property by metes and bounds and by reference to an appropriate map or plan to be recorded therewith, signed by a qualified professional engineer or a registered land surveyor, depicting the boundaries of the area in which the asbestos-containing material or asbestos-containing waste material is located; and

(c) a description of the type of asbestos-containing material or asbestos-containing waste material located therein.

However, as noted in the discussion document, DEP believes that it is both difficult and expensive to locate structures that exist on many properties that were formerly "campus" developments where pipes, ducts, steam tunnels, etc. were used to serve multiple buildings. It is also difficult to locate with precision the edges of areas in which construction or demolition debris was used as fill. While it would be helpful for subsequent owners to know where these structures and materials are if they are planning a construction project, the materials pose no risk to public health or the environment if they remain undisturbed at depth. DEP believes that using pre-construction site characterization techniques for construction projects are a more targeted way to identify these conditions, without requiring deed notices for all properties on which they remain.

Another option would be to require that notice be provided by a property seller to a buyer at the time of the transaction (as is currently the case with lead paint and certain types of foam insulation). However, for both of the examples, the Legislature has provided specific statutory authority, which is not available for asbestos-containing material.

DEP seeks comment on this issue, and suggestions for alternative approaches.

(2) Enforcement Provisions. 310 CMR 7.15 is subject to the enforcement provisions in 310 CMR 7.52, except as to 310 CMR 7.15(1)(b).

APPENDIX C. PROPOSED AMENDMENTS TO THE SOLID WASTE REGULATIONS TO ADDRESS ASBESTOS IN SOIL

NOTE: Double underlined sections are revisions that were proposed to be made in the Solid Waste Regulations in May 2004. DEP is now reviewing comments that were submitted, and expects to promulgate final rules in Fall 2004. Bold sections are the proposed changes to address asbestos in soil.

19.006: Definitions:

Asbestos in Soil means unconsolidated fibers of asbestos contained in the soil matrix that did not originate from asbestos manufacturing, fabricating, milling, or spraying operations. Asbestos in soil does not include "Asbestos-Containing Material" or "Asbestos-Containing Waste Material" as those terms are defined in the Air Quality Regulations at 310 CMR 7.00.

New definition proposed in solid waste reg. package:
Asbestos Waste means Asbestos-Containing Material and Asbestos-Containing Waste Material as defined in the Air Pollution Control regulations at 310 CMR 7.00.

19.061: Special Waste

(1) General . No solid waste management facility shall receive, store, process, treat or dispose of a special waste unless said solid waste management facility:

(a) is operated and maintained in compliance with a valid site assignment, plan approval or permit and any authorizations issued by the Department;

(b) has received written approval from the Department to handle the specific special waste pursuant to 310 CMR 19.061(5) and operates in compliance with the conditions of the approval, if required herein; and

(c) manages the waste in accordance with the requirements of 310 CMR 19.061(6).

(2) Classification of Special Wastes . A solid waste is classified as a special waste if:

(a) the waste is a special waste listed in 310 CMR 19.061(3); or

(b) the waste will require special management to ensure protection of public health, safety or the environment based upon the physical, biological, or chemical properties of the waste.

(3) Listed Special Wastes . Solid wastes that the Department has classified as listed special wastes include:

(a) asbestos waste;

(b) infectious wastes, except as specified in 310 CMR 19.061(6)(c)4.;

(c) sludges, including but not limited to wastewater treatment sludges, drinking water treatment sludges and industrial process wastewater treatment sludges.

(4) Application to Manage Special Wastes .

(a) General .

1. Solid waste management facilities shall use the application procedures described in 310 CMR 19.061(4), to apply to the Department for approval to manage a special waste.

2. The application shall include such information, data and descriptions as required by the Department to fully assess the nature of the special waste, its handling requirements and the capability of the facility to properly manage the waste.

(b) Filing . An application for approval to manage a special waste shall be filed with the Department. At the time of application to the Department, a copy of the application shall be filed with the board of health in whose jurisdiction the facility is located.

(c) Application for Special Wastes Other Than Asbestos and Infectious Wastes . Except for asbestos waste and infectious waste as specified in 310 CMR 19.061(4)(d), applications to manage special wastes shall include the information specified in 310 CMR 19.061(4)(c). Data submitted on the physical, chemical or biological properties of

the waste shall be generated from analyses of representative samples of the waste for each source of the waste. The application shall include:

1. identification of the solid waste management facility; 2. identification of the generator(s) of the waste and the specific source or sources of the waste;
3. a general description of the nature of the waste;
4. a description of the industrial or other process which generates the waste;
5. the quantity of the waste to be disposed and frequency of disposal (volume and/or tonnage per month or year);
6. a detailed description of the physical properties of the waste including, but not limited to size, density and percent solids;
7. a detailed description of the chemical properties of the waste including, but not limited to ph, reactivity, leachability and total metals;
8. a demonstration that the waste is not a hazardous waste pursuant to 310 CMR 30.000;
9. the biological properties of the waste, if applicable, including, but not limited to pathogens;
10. identification of special waste handling procedures to be employed by the facility to ensure proper management of the special waste; and
11. other information about the waste or the solid waste management facility as required by the Department in order to classify the waste or to determine the ability of the facility to handle the material.

(d) Applications for Asbestos Wastes and Infectious Wastes . Applications to manage asbestos wastes or infectious wastes shall include:

1. identification of the solid waste management facility;
2. the quantity of the waste to be handled or disposed (volume and/or tonnage per month or year);
3. identification of special waste handling procedures to be employed by the facility to ensure proper management of the special waste; and
4. other information about the waste as required by the Department in order to determine the ability of the facility to handle the special waste.

(5) Department Approval to Manage Special Wastes .

(a) Classifications . When the waste is not a listed special waste, the Department shall determine whether the waste is classified as a special waste. The Department's determination shall be based upon the quantity of waste, the physical, biological and chemical properties of the waste and whether the waste will require special management to ensure protection of public health, safety or the environment.

(b) Decision . The Department shall determine whether a facility shall receive approval to manage the special waste identified in the application. The Department shall base its decision on whether the facility can safely manage the special waste.

(c) Issuance of a Decision . The Department shall issue a written decision for all wastes for which it receives a request conforming with the requirements set forth in 310 CMR 19.061(4).

(d) Conditions . The Department may issue an approval to manage a special waste subject to any conditions the Department deems necessary to protect public health, safety or the environment. The approval may also contain a condition prohibiting the applicant from accepting the special waste for a period of not less than 14 days, to allow the Department to review comments from the board of health submitted pursuant to 310 CMR 19.061(5)(f), unless the Department determines that an adverse impact would result from a delay in disposal.

(e) Permit Modification . If the Department determines that the handling of a waste at a facility shall cause a deviation from the approved plan or permit, the operator shall submit an application for permit modification in accordance with 310 CMR 19.039.

(f) Board of Health Notification and Comment Period .

1. The board of health shall be notified of the Department's decision on an application to manage a special waste.
2. Within 14 days of receiving such notification the board of health may request the Department to rescind or modify an approval to manage a special waste where the board of health deems that the handling of the special waste would have an adverse impact.

(g) Modification or Recision . The Department shall modify or rescind, as appropriate, an approval to accept special waste if the board of health demonstrates to the satisfaction of the Department, in the request filed in accordance with 310 CMR 19.061(5)(f), that the acceptance of the special waste under the conditions which may have been imposed by the Department is likely to result in an adverse impact.

(6) Management Requirements for Special Wastes .

(a) General Requirements . The following conditions shall apply to any solid waste management facilities handling special wastes:

1. the operator shall keep a copy of the approval to manage a special waste on file at the facility and make available said approval letter upon request by Departmental representatives; and
2. the operator shall instruct and train employees in proper handling procedures for any special waste approved to be managed by the facility.

(b) Requirements for Handling Asbestos Wastes . In addition to the requirements at 310 CMR 19.061(6)(a), all asbestos waste, except as specified in 310 CMR 19.061(6)(b)3., shall be managed in accordance with 310 CMR 19.061(6)(b)1. and 2.

1. All facilities shall observe the following requirements for handling asbestos waste:
   a. Asbestos waste shall not be accepted for disposal at solid waste combustion facilities.
   b. Asbestos waste that has not been properly wetted, containerized and labeled according to 310 CMR 7.15 shall not be accepted at any solid waste management facility.
   c. Asbestos waste that has been properly wetted, containerized and labeled in accordance with 310 CMR 7.15 shall not be accepted at any solid waste facility unless that facility has received approval from the Department in accordance with 310 CMR 19.061 to accept asbestos waste.
   d. Asbestos waste that has been properly wetted, containerized and labeled shall be managed so as to maintain the integrity of its containers and to prevent emissions of asbestos fibers to the ambient air.
2. Landfill Specific Requirements . In addition to the requirements in 310 CMR 19.061(6)(b)1., landfills that have received approval from the Department to accept asbestos waste shall observe the following operational requirements:
   a. Asbestos waste shall be immediately disposed in the landfill and shall not be stored at the landfill prior to placement in the landfill.
   b. Asbestos waste shall be placed in the landfill in such manner as to prevent the release of asbestos fibers to the air during placement.
   c. Asbestos waste shall be placed in the landfill using a method approved by the Department. The approved method shall be as described in 310 CMR 19.100 through 19.204 in Department guidance or in a Department approval or permit. All such approved placement methods shall include requirements that the asbestos waste is covered by sufficient amounts of either solid waste that does not contain asbestos and/or daily cover material to assure that no asbestos fibers are released to the air during or subsequent to compaction.
   d. Accurate records of the surveyed location in the landfill of all asbestos waste shall be maintained. Locations of asbestos deposition shall be noted in the Record Notice of Landfill Operation pursuant to 310 CMR 19.100

through 19.204. Locations of asbestos deposition shall also be included whenever information regarding the property is recorded on the property deed pursuant to M.G.L. c. 111, § 150A.

e. Areas of the landfill containing asbestos shall be clearly marked by the operator.

f. Areas of the landfill containing asbestos waste shall not be excavated.

3. Requirements for certain classes of asbestos wastes . The following asbestos wastes are not subject to the provisions of 310 CMR 19.061 except as specified at 310 CMR 19.061(6)(b)1.a.:

a. intact and unbroken vinyl asbestos tile (VAT);

b. asphaltic asbestos-containing siding products and asphaltic asbestos-containing materials such as roofing felts~~,~~ and roofing shingles ~~and asphalt siding products~~ (Note: This does not include other asbestos containing roofing shingles and siding products such as those containing a cementitious binding characterized as being hard and brittle.); and

c. Asbestos in Soil as defined at 310 CMR 19.006; and

d. ~~e.~~ other asbestos waste so designated by the Department in writing.

(c) Requirements for Handling Infectious Waste . In addition to the requirements at 310 CMR 19.061(6)(a), infectious waste shall be handled in accordance with the following:

1. In addition to the requirements of 310 CMR 19.000, infectious waste shall be treated, packaged, labeled and disposed of in accordance with 105 CMR 480.000.

2. Landfills . Infectious waste shall not be disposed in a solid waste landfill unless the waste is processed and managed to meet the requirements of 310 CMR 19.061(6)(c)4.

3. Facilities other than landfills . Infectious waste (which has not been rendered non-infectious) shall not be accepted at a solid waste management facility unless that facility has received approval under 310 CMR 19.061 to manage infectious waste.

4. Infectious waste that has been rendered non-infectious in accordance with 105 CMR 480.000 and is packaged, labeled and otherwise managed in accordance with 105 CMR 480.000 is not subject to 310 CMR 19.061 and may be accepted at any solid waste facility.

(d) Requirements for Handling Sludges . In addition to the requirements at 310 CMR 19.061(6)(a), sludges shall be handled in accordance with the following:

1. General Requirements . Disposal of all types of sludges shall comply with the following requirements.

a. Sludges accepted at a solid waste facility shall not contain free draining liquids.

b. Sludges disposed at landfills shall contain a minimum of 20% solids.

c. Odor control methods, acceptable to the Department, shall be employed at all landfills accepting odor-producing sludges.

2. Requirements for Sewage Treatment and Water Treatment Sludges . In addition to the requirements set forth at 310 CMR 19.061(6)(d)1., sewage treatment and water treatment sludges shall comply with the following requirements.

a. Sewage treatment and water treatment sludges shall be incorporated into the active face of a landfill in a 3:1 mixture of solid waste to sludge or placed in a designated area and covered immediately.

b. Sewage treatment sludges may be accepted at a solid waste landfill only after land application and composting options have been investigated by the applicant or by the generator of such sludge and determined by the Department not to be feasible, provided that said investigation of options may be deferred for a reasonable time upon a determination by the Department that adverse impacts may occur as a result of delaying disposal

of the sludge.

c. Sewage treatment sludges containing pathogens that have not been stabilized using methods approved by the Department shall not be disposed at an unlined landfill, unless specifically approved by the Department on a temporary basis.

3. Requirements for Industrial Wastewater Treatment Sludges . In addition to the requirements set forth at 310 CMR 19.061(6)(d)1., industrial wastewater treatment sludges shall comply with the following requirements.

The solid waste management facility operator shall provide data, descriptions and other information required at 310 CMR 19.061(4) to the Department for each separate source of industrial wastewater treatment sludge prior to acceptance at the landfill.

(7) Reclassification . The Department may reclassify a waste in accordance with 310 CMR 19.061(5) or place further conditions on an approval to manage a special waste in accordance with 310 CMR 19.061 should such action be deemed necessary. Any such reclassification or conditions shall be in writing.

APPENDIX D. DRAFT GUIDANCE: BEST MANAGEMENT PRACTICES FOR BULK LOADING OF ACM SOIL/DEBRIS

1. Conduct perimeter air sampling on all four sides of the work area during all active handling operations (unless containment is used):
    a. Use phase contrast microscopy (PCM) to analyze a minimum of 8 air monitoring samples per 8-hour shift, and perform PCM analysis on-site to obtain real-time data (maintain data on-site). On 10% of samples, use transmission electron microscopy (TEM) to verify PCM results.
    b. Stop work and notify BWP if fiber levels exceed 0.01 fibers/cc.
    c. If containment is used for handling, collect and analyze clearance air monitoring samples prior to breaking down or moving containment.
    d. Employ a DOS certified Asbestos Project Monitor to perform air monitoring.

2. Loading Operations
    a. Keep ACM soils wet during excavation, handling and loading so that no dust is generated.
    b. If mechanical screening of ACM soil to remove debris will be performed, conduct screening in a negative-pressure contained work area using air cleaning. **[Note to Reviewers: it has been suggested that containment is prohibitively expensive, and that this requirement would effectively prohibit mechanical screening, which can be an important tool at sites with large volumes of asbestos-contaminated soil. DEP solicits comment on alternative approaches to ensure that mechanical screening will not result in the release of asbestos fibers into the air during such operations.]**
    c. Clearly delineate (e.g., identify and mark) routes from loading area to equipment decontamination area to avoid contamination spread.
    d. Load soil from excavation directly into trucks or containers and avoid stockpiling of soil (i.e., to limit number of times soil is handled).
    e. Prevent visible emissions during all operations.
    f. To the extent feasible, use loading machinery that creates the least amount of soil disturbance (e.g., an excavator is preferable to a vacuum loader) and facilitates decontamination (e.g., tire vehicles are preferable to tracked vehicles).
    g. If a vacuum loader is used, the material outlet / loading operations must be conducted under negative-pressure containment.

3. Packaging
    a. Line containers or trucks with two 10-millimeter thick pre-formed polyethylene liners (do not use roll poly). Polyethylene liners should be designed and sized for the container to be used and should be folded over sides of trailers or containers to protect against contamination during loading and to facilitate decontamination. **[Note to Reviewers: DEP is proposing the use of 10-mil liners as a standard practice, to ensure that the liners will not be pierced or torn by the material loaded. An alternative approach would be to establish a performance standard such as the**

use of liners that are thick enough to handle the material being loaded without tearing or breaking. While most projects involve excavation of debris containing building rubble would require 10-mil liners, projects where only soil is being loaded could use 6-mil liners without breaking or tearing.

b. After loading, seal both liners separately.
c. For containers of asbestos containing waste, place labels noting "asbestos danger" and generator on top of sealed liner; place DOT asbestos placard (2212) on all four vertical sides of the container or vehicle being used.

4. Decontamination
    a. Use 3-stage personnel decontamination as appropriate.
    b. Establish an equipment decontamination area and ensure that the decontamination pad for equipment is constructed to withstand use weight of equipment, frequency of use, length of the job, etc. (e.g., multi-layer, with materials such as stone, EPDM-rubber roofing, hay bales, filters and pumps).
    c. Prior to disposal, collect and filter all water used in the decontamination process using a 5-micron filter and dispose of the filter as asbestos waste. Pre-filtration screening or pre-treatment should be implemented as needed to keep the 5-micron filter from clogging. Decontamination water that has been filtered with a 5-micron screen should be reused where possible. Disposal should be done in accordance with management plans for other wastewater generated by construction activities at the location.
    d. Clean the decontamination area as needed, at a minimum at the end of every shift.
    e. Waste resulting from the breakdown of personnel and equipment decontamination should be handled as asbestos containing waste material and should be packaged and disposed of accordingly.

5. Personal protective equipment
    a. Follow 453 CMR 6.00 Worker Protection Requirements and OHSA standards at 29 CFR Part 1926.1101.

6. Training/certifications
    a. Follow 453 CMR 6.00 Training and Certification Requirements